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7. Abstract

The document contains the Expedited Response Action Proposal for the Sodium Dichromate Landfill. The Proposal describes the site characterization activities, sample results, screens alternatives, and recommends a preferred alternative to close out the ERA action.

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) and Washington State Department of Ecology (Ecology) recommended that the U.S. Department of Energy (DOE) prepare an expedited response action (ERA) for the Sodium Dichromate Barrel Landfill (Appendix A). The ERA lead regulatory agency is Ecology and EPA is the support agency. The ERA classification is non-time critical. It will follow the applicable sections of 40 CFR 300, Subpart E (EPA 1990), the *Hanford Federal Facility Agreement and Consent Order* (Part 3, Article XIII, Section 38) (Ecology et al. 1991), the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA), the *Resource Conservation and Recovery Act of 1976* (RCRA), and the State of Washington *Model Toxics Control Act* (MTCA).

A non-time-critical ERA proposal includes preparation of an engineering evaluation and cost analysis (EE/CA) section. The EE/CA is a rapid, focused evaluation of available technologies using specific screening factors to assess feasibility, appropriateness, and cost.

The ERA Proposal will undergo a parallel review process with Westinghouse Hanford Company (WHC), DOE-RL, EPA, Ecology, and a 30-day public comment period. This will occur at the same time. Ecology and EPA will issue an Action Agreement Memorandum after comment resolution. The memorandum will authorize implementation of the ERA proposal's recommended alternative.

The ERA goal is to reduce the potential for any contaminant migration from the landfill to the soil column, groundwater, and Columbia River. Since the landfill is the only waste site within the operable unit, the ERA will present a final remediation of the 100-IU-4 operable unit.

2.0 SITE DESCRIPTION

2.1 LOCATION AND PHYSICAL DESCRIPTION

The Sodium Dichromate Barrel Disposal Site was used in 1945 for disposal of crushed barrels. The site location is the sole waste site within the 100-IU-4 Operable Unit (Figure 1).

Historical documentation for the site (site dimensions, usage, and waste volume) is not available. The Waste Information Data System (WIDS 1992) assumes that the crushed barrels contained 1% residual sodium dichromate at burial time and that only buried crushed barrels are at the site. Burial depth is shallow since visual inspection finds numerous barrel debris on the surface (Table 1 and Figure 2).

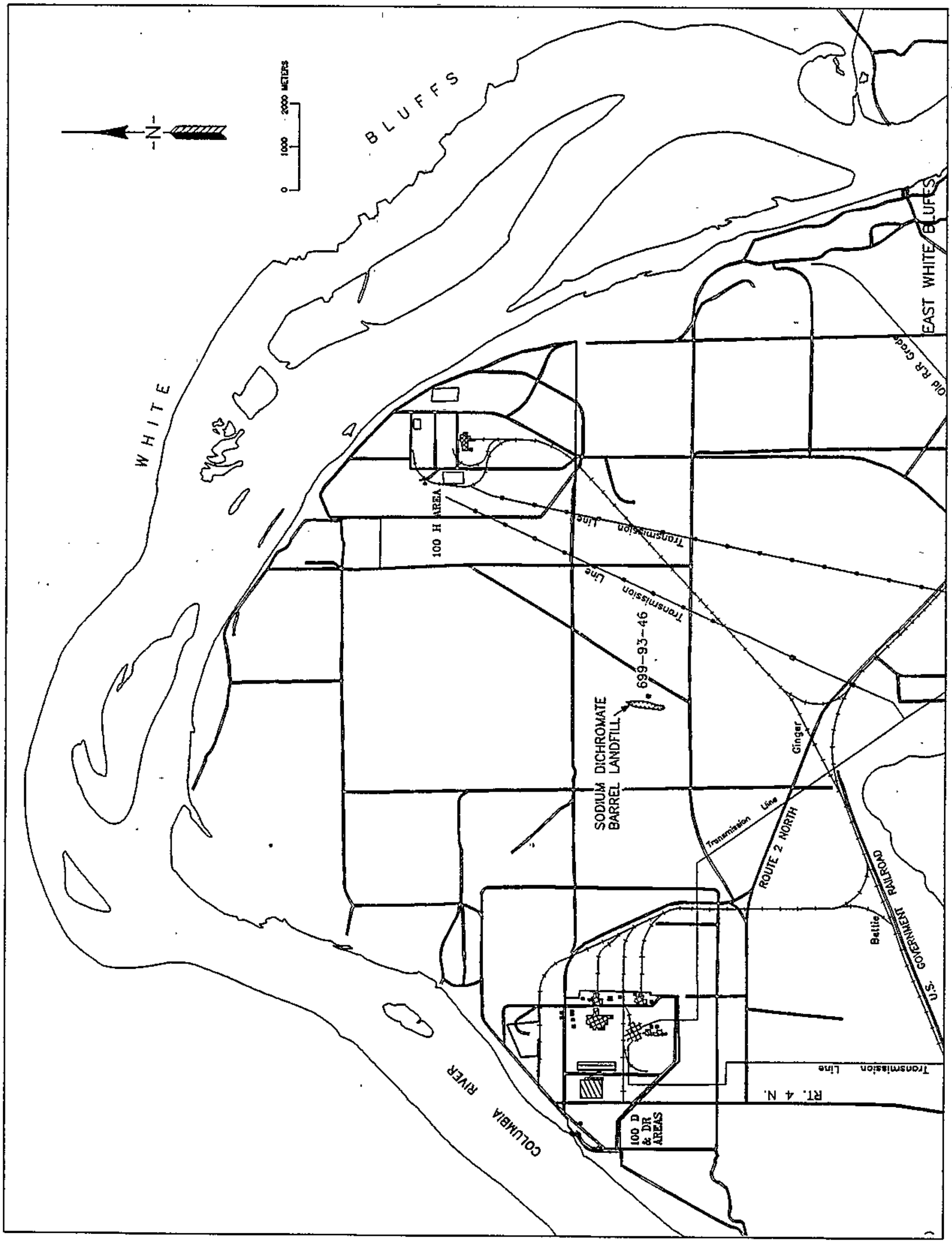


Figure 1. Sodium Dichromate Barrel Landfill Site Map.

Table 1. Surface Debris Location.

Site	Location	Debris type
A	26 ft NNW of N540 E680 and 16 ft SSW of N580 E680	Homestead (wire, stove pipe)
B	8 ft WNW of N820 E760	Barrel\wire
C	22 ft W of N860 E800	Wire
D	23 ft & 34 ft NNE of N900 E720 / 25 ft and 36 ft SSW of N940 E780 23 ft - 30 ft W of Barrels 32 ft N of Barrels	Barrels (2) Screen wire Wire
E	17 ft E of N940 E860	Barrel (along roadway)
F	40 ft E of N1060 E800	Wire in roadway
G	31 ft WNW of N1060 E800 & 13 ft WSW of N1060 E760	Wire
H	28 ft NNE of N1020 E740	Homestead
I	N980 E700 10 ft E of N980 E729	Barrels (2) Wire
J	N1020 E690 ~ 23 ft radius around coordinate point	Homestead (scattered)
K	N1060 E700 ~ 12 ft radius around coordinate point	Barrel\homestead
L	N1060 E670 24 ft NNW of N1060 E670	Barrel Barrel
M	11 ft S of N1060 E630	Homestead
N	10 ft NNE of N1100 E760	Homestead
O	N1140 E680 (all within a rectangular area 14 ft N of pts. N1140 E690 and N1140 E660	Barrels (5) distances referenced to N1140 E680: 4 ft N, (2) 14 ft NNE, 6 ft WNW, and 14 ft WNW
P	17 ft N of N1140 E640	Barrels (2)
Q	Along N1180 line starting at E650 to E670 28 ft NNE of N1180 E670	Barrel Barrel
R	12 ft S of N1220 E630	Barrel/homestead
S	12 ft and 22 ft S of N1260 E690	Barrels (2)
T	9 ft N of N1260 E650 On N1260 line between E650 and E640 6 ft N of N1260 E640	Barrel Barrel Barrel
U	10 ft S of N1300 E680 (between E670 and E680)	Wire
V	18 ft SSE of N1300 E540	Wire/homestead
W	12 ft NNW of N1300 E720	Barrel/homestead
X	On N1740 line, 15 ft W of E580 On 1740 line, 12 ft W of E540 14 ft N of N1740 E600	Barrel Wire Wire
Y	On N1820 line 18 ft E of E500	Barrel lid (?) homestead/wire

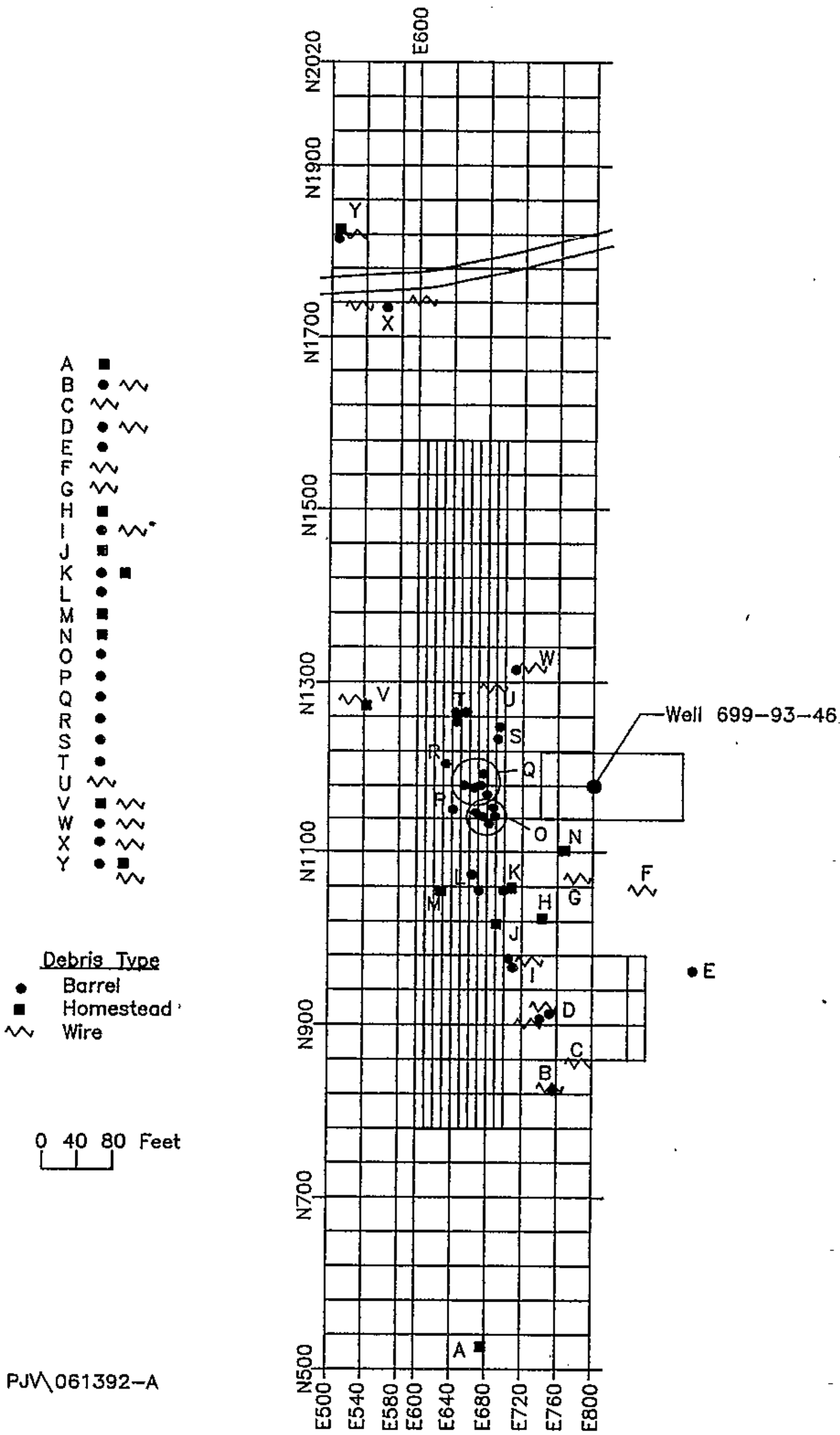


Figure 2. Surface Debris Grid Location.

The site is located in a small depression (Figure 3) between the 100 D and H areas. The site is a rectangular shape about 1,500 ft long by 300 ft wide. The immediate area surrounding the site still shows evidence (field rows) of the original agricultural use. The site is bounded by a fence line along the top of the east slope, a paved road to the south, and an old farm road to the north. The site contains homestead surface debris; e.g., barbed wire, fencing wire, stove pipe, and tin cans.

Chromium (Cr) exists as a contaminate in the 100-HR-3 Operable Unit area groundwater. This site is not the suspected source. Groundwater samples from the site's monitoring well (699-93-46, Figure 2) adjacent to the site do not report detectable levels of Cr. The groundwater depth is about 29 ft. The 100-HR-3 Groundwater Operable Unit beneath the area has identified Cr as a contaminate of concern. While the empty drums were disposed at the landfill, the site is not considered to be the groundwater contamination source. Groundwater analysis shows total Cr levels less than 5 ppm.

Site radiation surveys indicate that radiation levels are not in excess of the natural background levels.

The site contains many bare patches (most in circular shape with diameters from about 1 ft to 10 ft) surrounded by healthy cheat grass. A Hanford Site survey (Figure 4) identified areas containing this natural phenomena. It is not related to the site disposal activities.

2.2 CHARACTERIZATION ACTIVITIES

Site characterization activities included two geophysical nonintrusive ground-penetrating radar [GPR] and electromagnetic induction [EMI]) surveys, surface debris collection, sample trenches, sample pit, and soil sampling.

The original geophysical survey (Figures 5 and 6) identified many subsurface anomalous zones. The survey identified the need to remove the surface debris (about 41 barrels and homestead objects) which interfered with the survey (Figure 7 and 8) and resurvey. Field screening and offsite laboratory analysis sample collection occurred during surface debris cleanup.

The follow-up geophysical survey (Figures 9 and 10) provided more detail, clearer anomaly delineation, and the detection of several additional anomalies.

The surveys identified eight large anomalous areas. The major anomalies are within four distinct areas located between N900 and N1300 (Figure 10). These anomaly areas appear to start 1 to 3 ft below the surface. Throughout the site are many isolated anomalies. The surveys interpreted most of these anomalies as metallic debris.

Four additional areas were identified in the site's northern portion (Figure 6). Three appear to be from shallow metallic debris and the other is a buried "trough-like" feature. These four areas are probably from past farming activities.

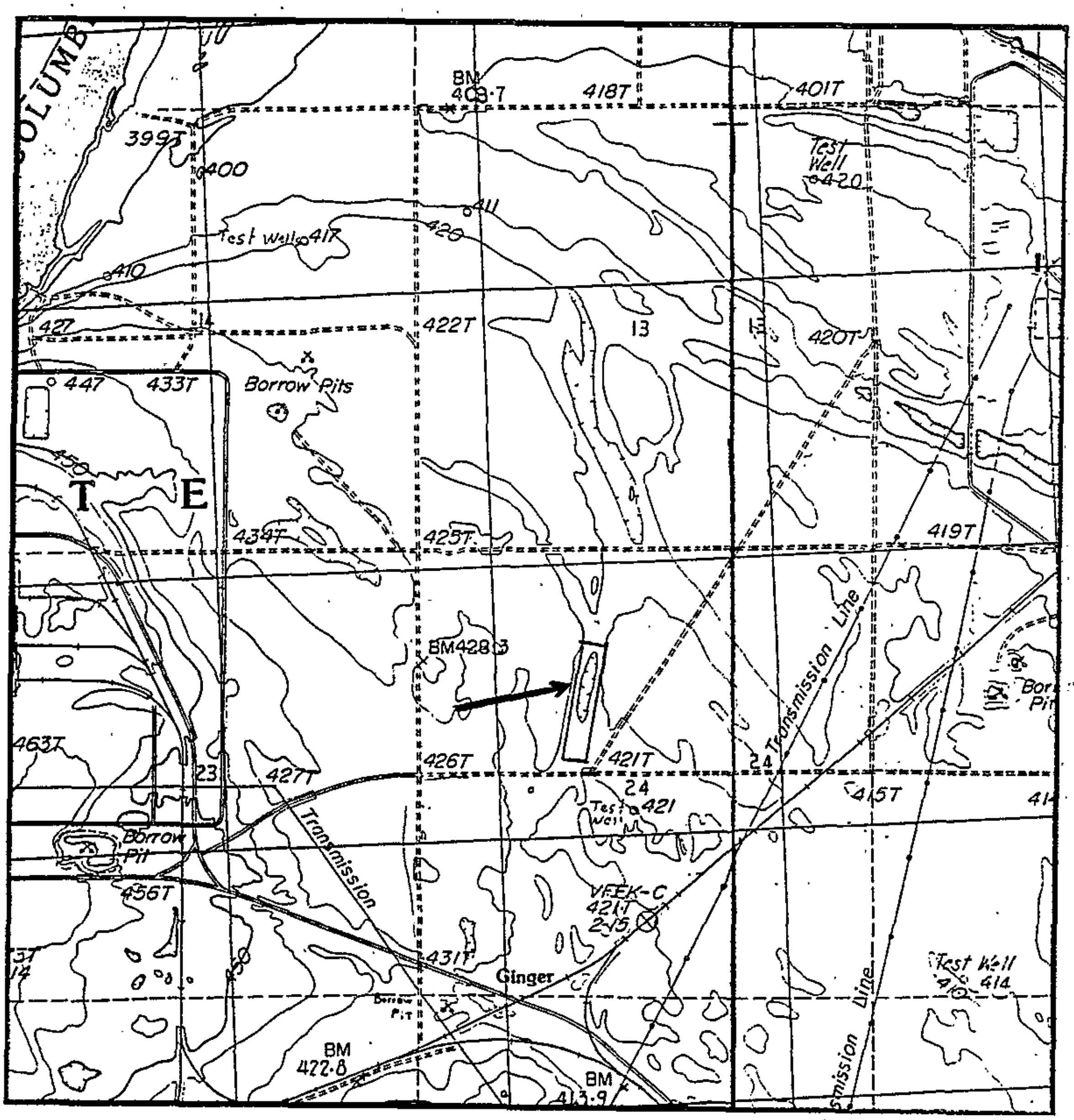


Figure 3. Site Contour Map (GEO 1986).

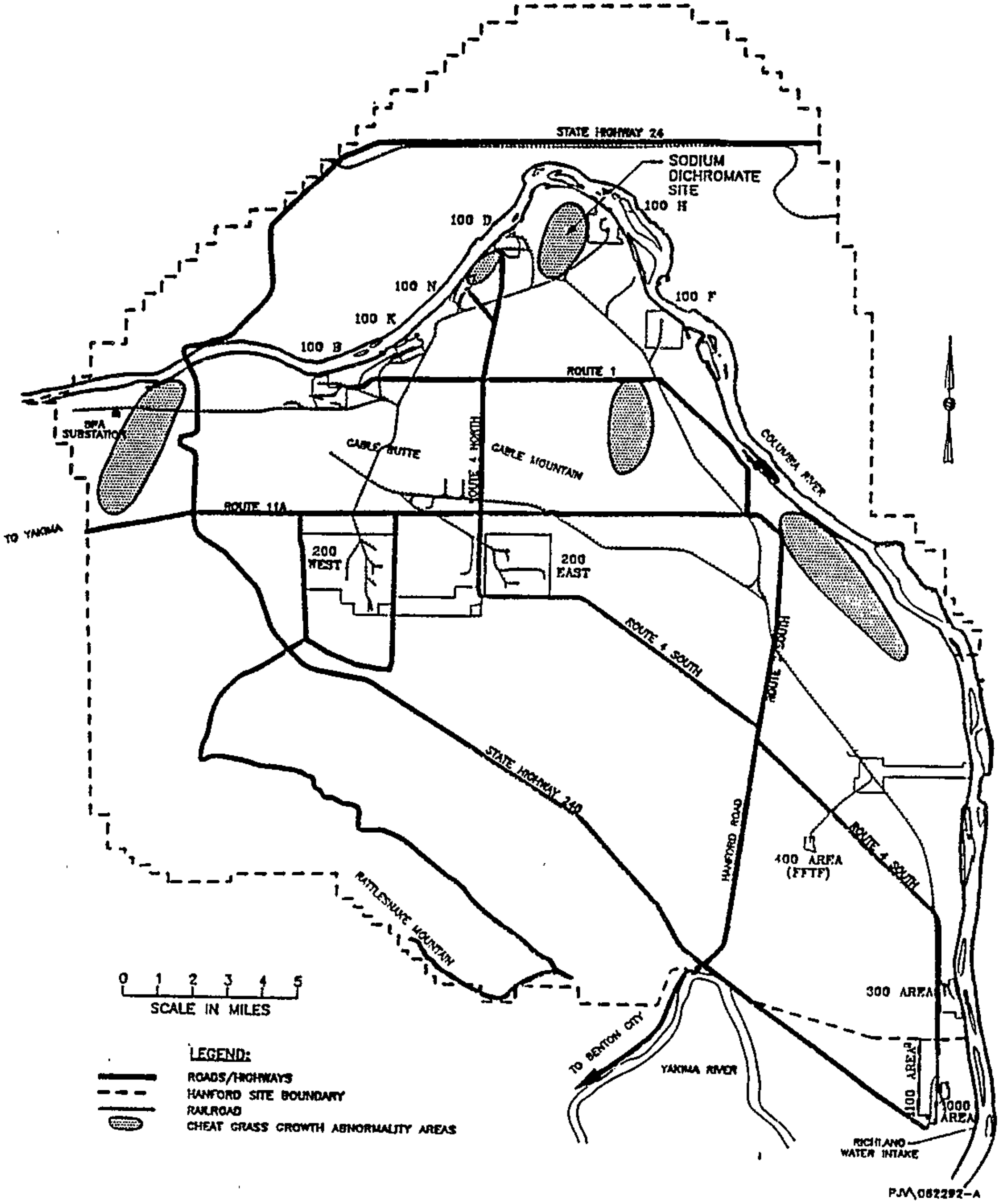


Figure 4. Cheat Grass Abnormality Locations.

9 2 1 2 7 7 1 2 0 4

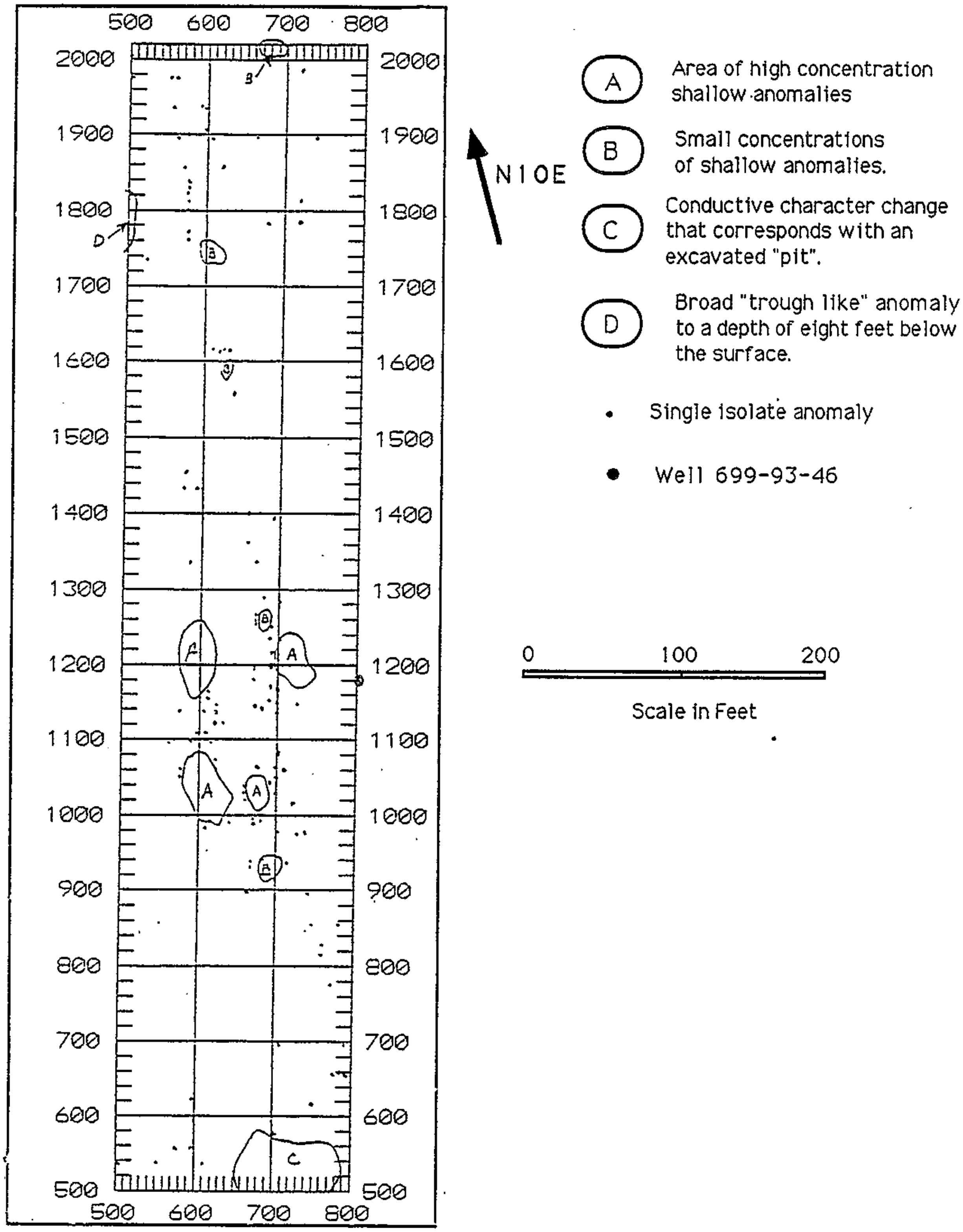
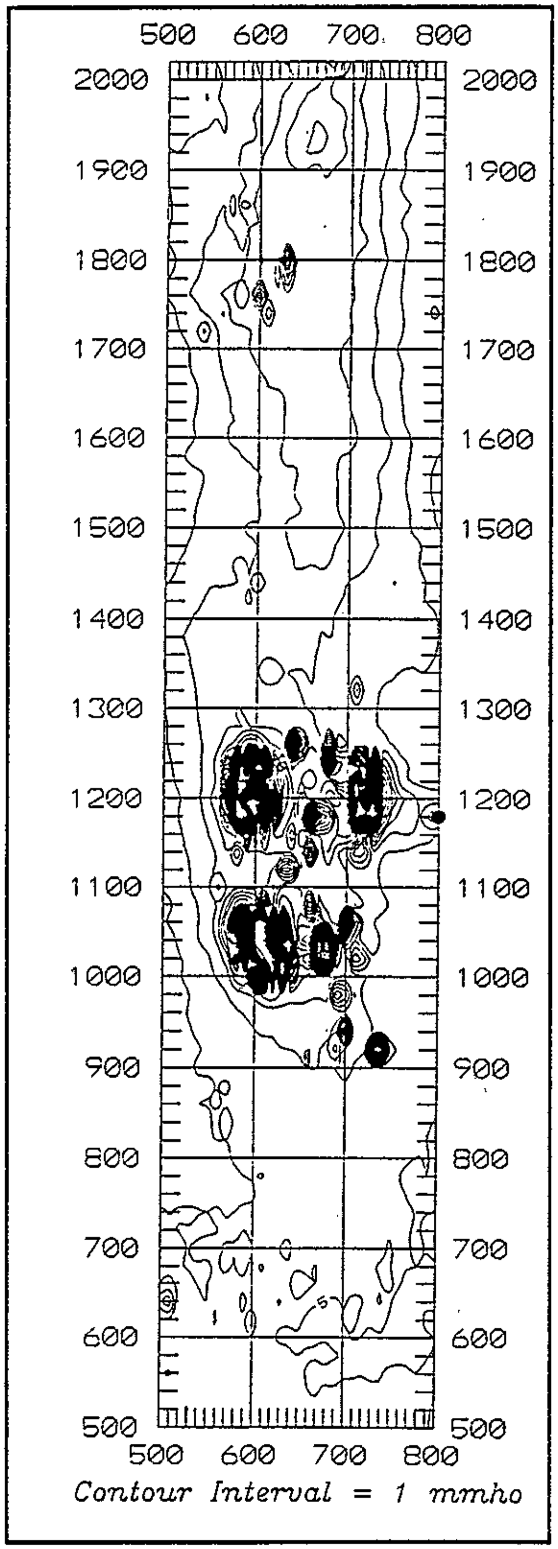


Figure 5. Phase I Ground-Penetrating Radar Interpretation.



Electromagnetic Induction Contour Map

The EMI component displayed on this contour map is the subsurface electrical conductivity expressed in millimhos. The regional conductivity of the area is in the range of 5–10 millimhos per meter. These values are a function of the natural environment; primarily the sediment type and moisture type. Several anomalous zones outside the 5–10 millimho conductivity range are found between N980 and N1260. In many cases, these zones do not coincide with surface metal debris.

The anomalous zones are complicated and do not reveal a simple geometry. The tight contour lines signal an abrupt change in sub-surface conductivity. The depth of these conductivity anomalies is unknown. The anomalies may be due to buried metallic debris.

Some non-regional anomalies coincide with surface metal debris, but there are four large anomalies with no marked surface debris.

note: Grid strikes 10NNE

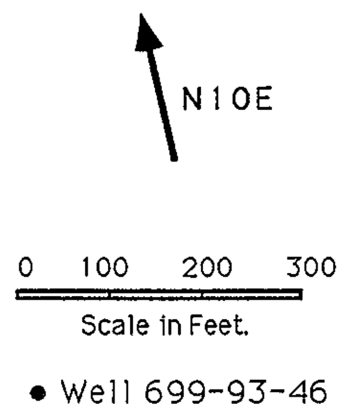


Figure 6. Phase I Electromagnetic Contour Map.

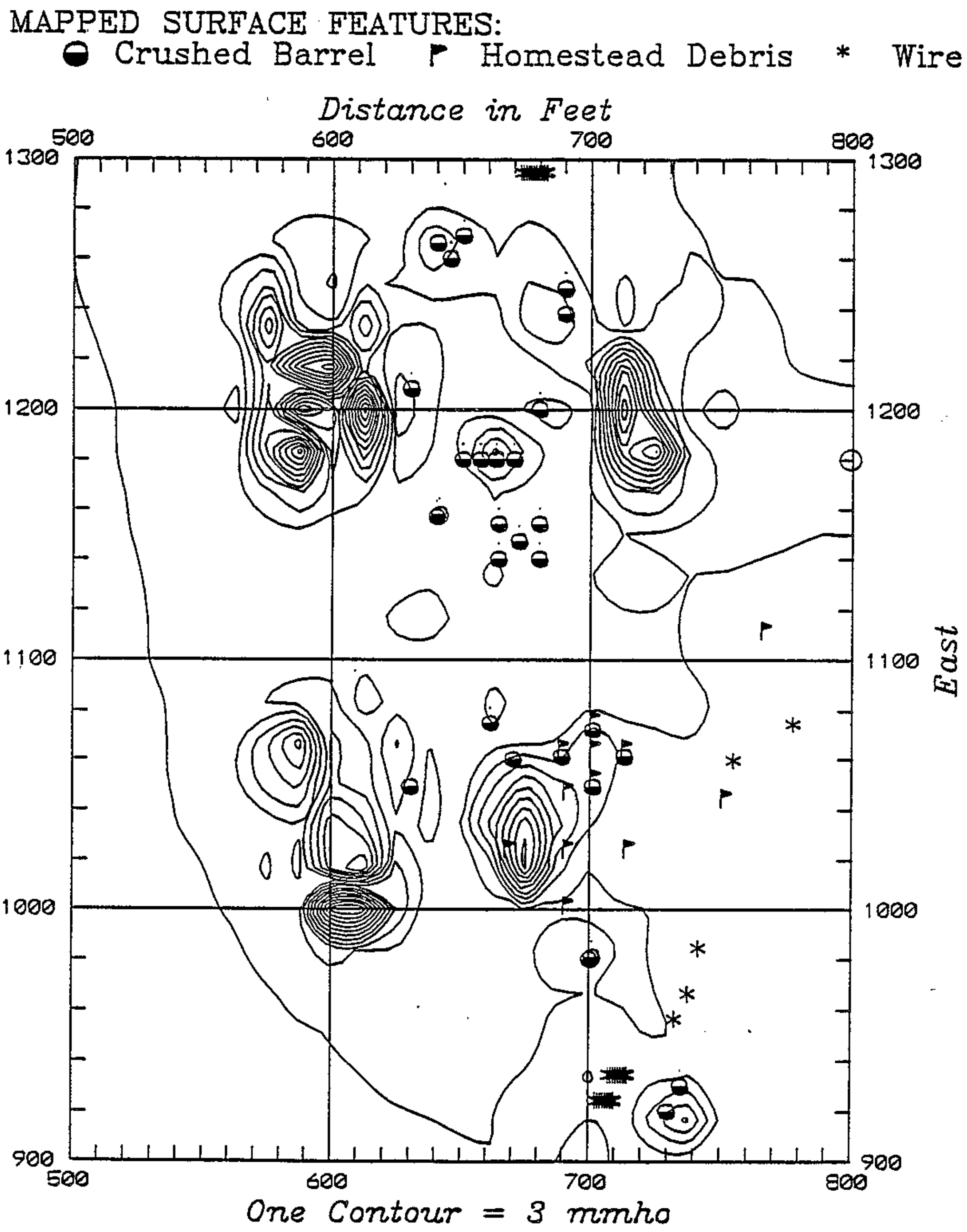


Figure 7. Blowup Showing Surface Debris Interference with Phase I Electromagnetic Induction Survey.

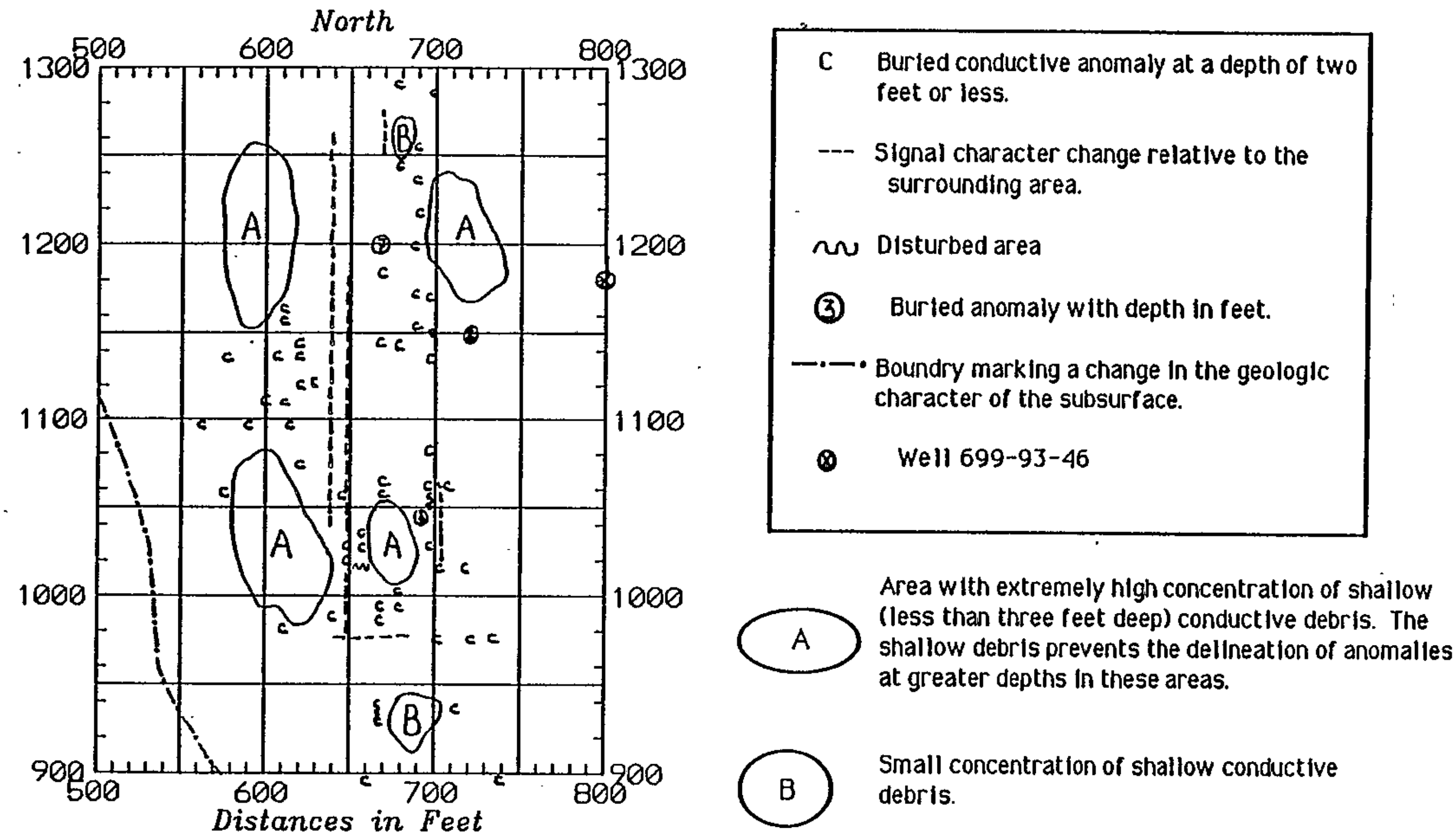


Figure 8. Blowup Showing Surface Debris Interference with Phase I Ground-Penetrating Radar Survey.

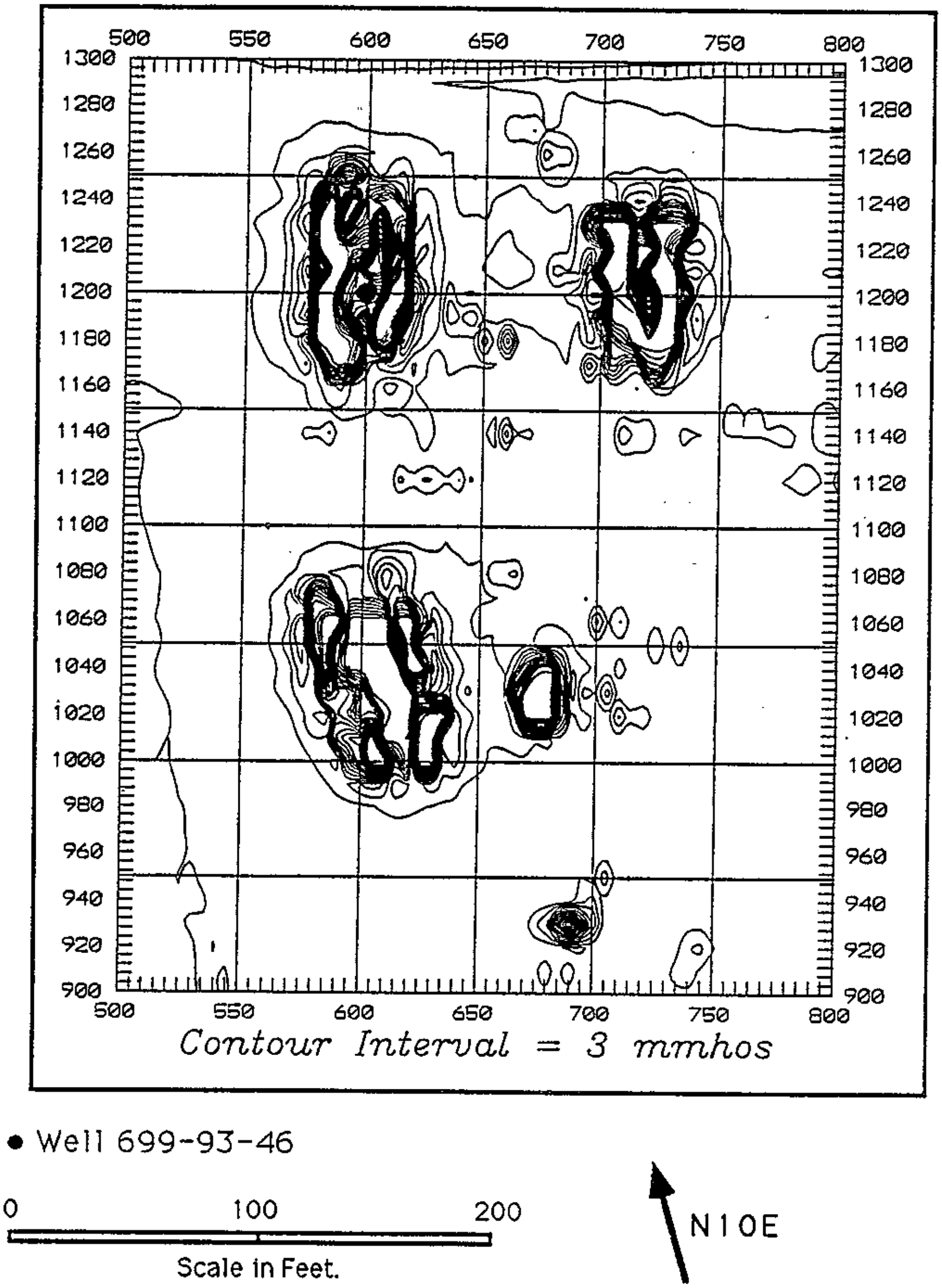


Figure 9. Phase II Electromagnetic Induction Contour Map.

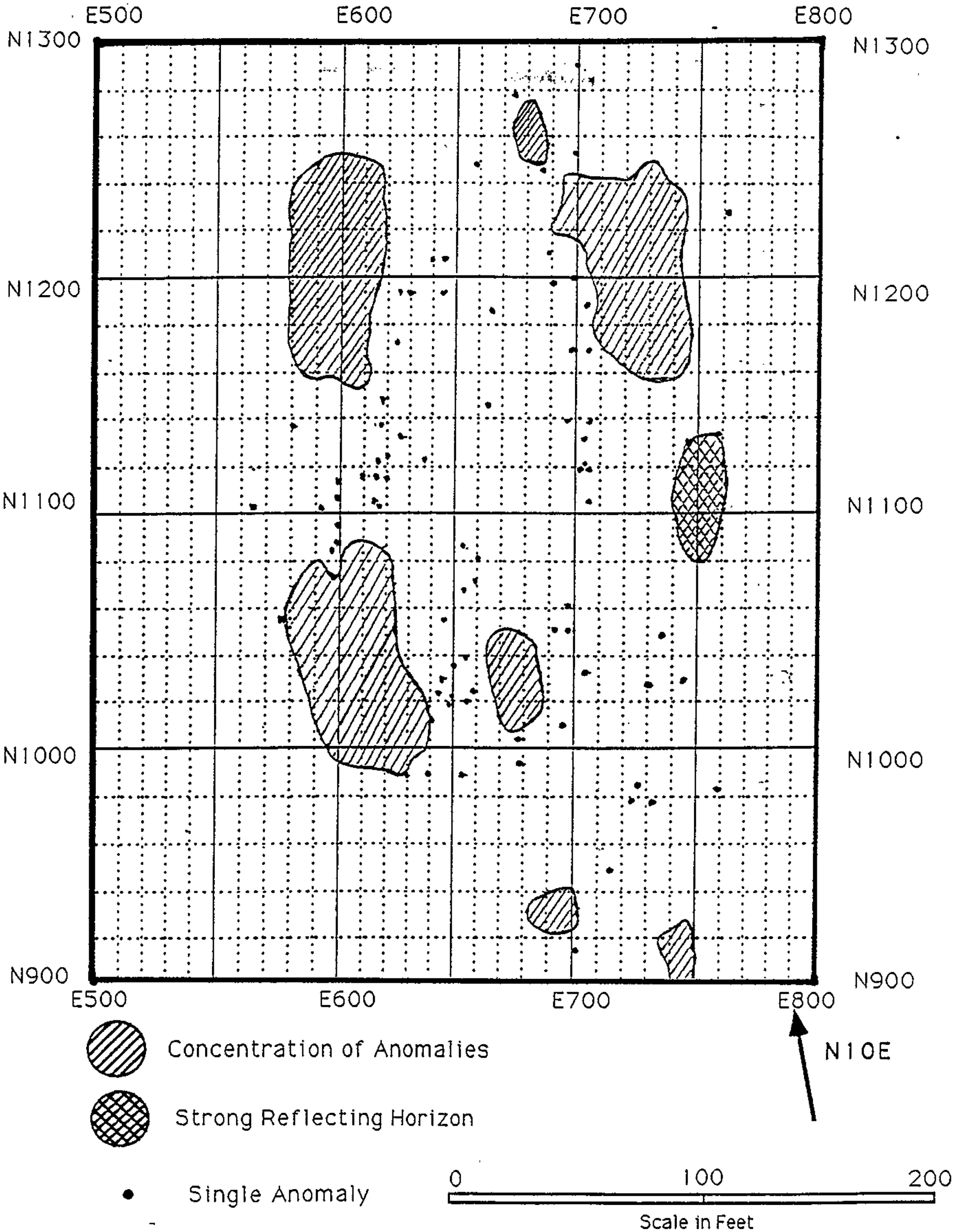


Figure 10. Phase II Interpretation Summary.

Based on the survey results, two sample trenches and one sample pit (Figure 11) were dug to confirm the survey findings. A crushed drum with the wording "SODIUM DICHROMATE CRYSTALS" still legible was discovered in Trench 2. Crushed drums exists to a depth of about 6.5 ft in both trenches. The sample pit confirmed an anomaly as a shelf of hard packed cobble and sand that extends below the 7-ft pit depth.

2.3 CONTAMINANTS OF CONCERN

The contaminates of concern are Cr and chromium+6 (Cr+6). The assumption (WIDS 1992) is that the disposed drums contained 1% by volume residual sodium dichromate.

2.3.1 Background Data

Historical documentation for the site (site dimensions, usage, and waste volume) is not available. WIDS (1992) assumes that the crushed barrels contained 1% residual sodium dichromate at burial time and that only buried crushed barrels are at the site.

2.3.2 Soil Sample Data

Soil samples were collected from the surface, two test trenches, and one test pit (Appendix B). During surface debris cleanup, surface samples were obtained for analysis. The test trench sampling occurred at the surface and various depths to the trench bottom (about 7 ft deep). The sample pit sampling was at the bottom since this anomaly turned out to be a natural geologic formation.

The samples were either field screened for Cr+6 and total Cr or sent to an offsite laboratory for analysis. Offsite laboratory analysis was for Cr+6, Cr, and gamma emitting radionuclides. Appendix B provides a summary of the sample data.

Samples were field surveyed for radiation. The field instruments did not detect any radiation levels in excess of natural background radiation levels. These surveys and the gamma spectrum results confirm the determination that the site contains no manmade radionuclide contamination.

The field screening results show barely detectable Cr+6 levels. Levels detected are less than 5 ppm.

3.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Section 7.5 of the Action Plan in the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1991) contains the basic description of applicable or relevant and appropriate requirements (ARAR).

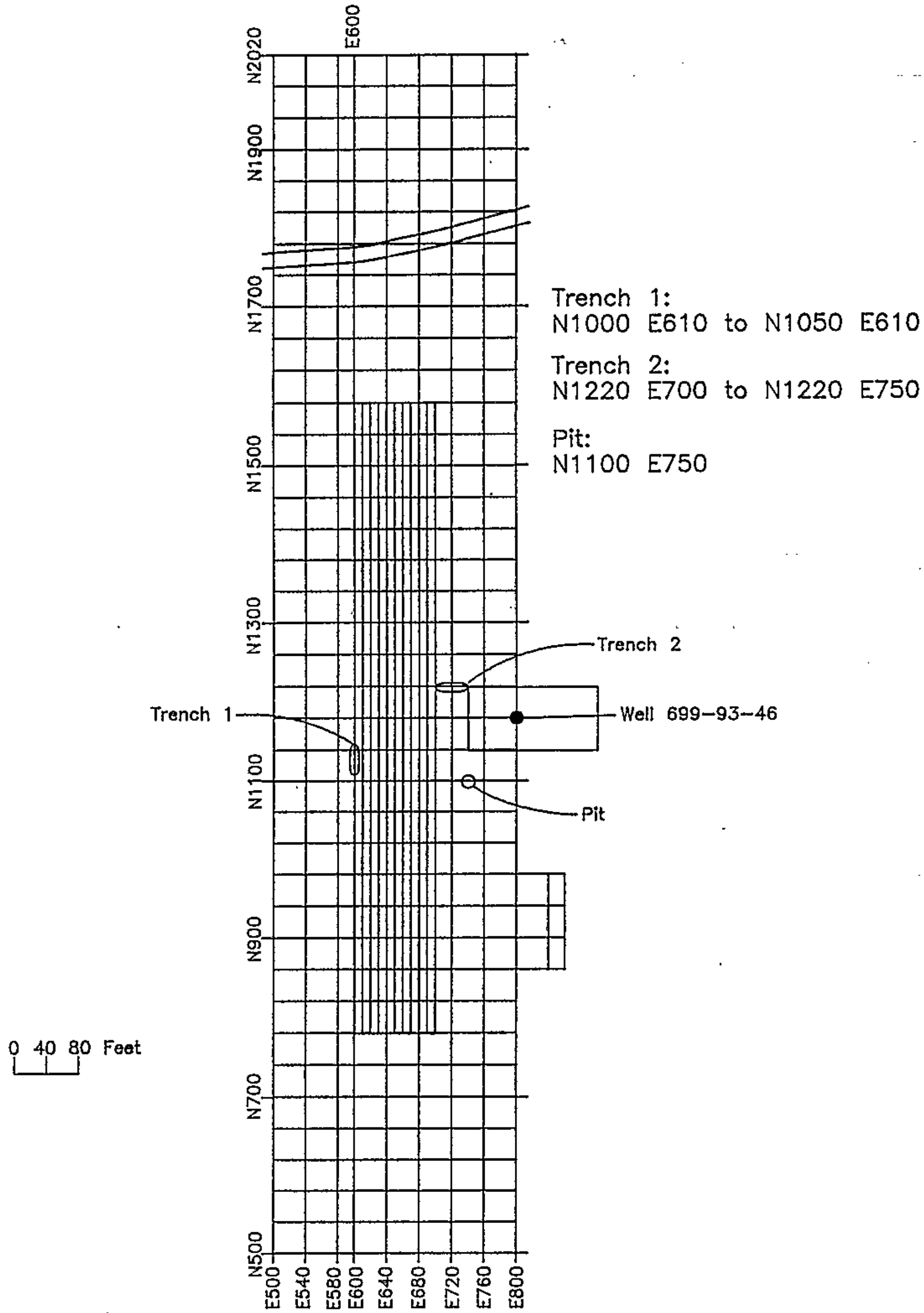


Figure 11. Sample Trenches and Pit Locations.

There are no applicable federal cleanup standards or chemical-specific ARARs for compounds in soil (hazardous or radioactive) except the EPA standards for lead and radium. Washington State Regulations (WAC 173-340) provide soil cleanup standards.

This waste site contains only one known hazardous substance (Cr). Therefore, the *Model Toxics Control Act* (MTCA) Method A cleanup level applies (WAC 173-340-740). "Under Method A, cleanup levels for hazardous substances are established at concentrations at least as stringent as concentrations specified in applicable state and federal laws and Tables 1, 2, or 3" (WAC 173-740-700). Table 1 contains the cleanup level for water which for Cr is 50.0 μg/L. Table 2 lists the cleanup level for soil which for Cr is "100 mg/kg or 100 ppm (CAS no. 7440-47-3)" for resuspended dust inhalation. Table 3 lists the Cr cleanup levels for industrial soil at 500 mg/kg (or 500 ppm) for inhalation exposure.

4.0 EVALUATION OF REMEDIAL ALTERNATIVES

After receiving direction to develop an ERA proposal, WHC rated appropriate clean up alternatives for a timely ERA implementation. The Sodium Dichromate ERA is a non-time-critical response action per EPA determination. This requires an EE/CA (FR Vol. 55, No. 46/March 8, 1990 page 8843; Title 40, Code of Federal Regulations, Subpart E 300.415). The EE/CA is similar to a focused feasibility study. It considers ARAR, protection of the environment and human health, timeliness, effectiveness, and cost to select a preferred alternative.

Selecting a preferred alternative is a two-phased process. The first phase is initial screening of potential clean up activities against the criteria of timeliness and environmental protection. The second phase evaluates the alternatives that pass the screening against additional criteria to select a preferred method to perform the ERA. The second criteria set includes technical feasibility and reliability, administrative and managerial feasibility, and cost.

Technical feasibility and reliability criteria eliminates innovative, conceptual, and emerging clean up technologies from being considered. These require further development and do not have a proven record for the application under consideration. This criterion also includes the degree of environmental protection and potential for impacting the record of decision (ROD).

Administrative and managerial feasibility focuses on the ability to perform a cleanup activity and includes equipment, permits, and public acceptance. The EPA and Ecology involvement in this ERA process has been continuous since March 1992.

The cost criterion, while an important factor in the overall evaluation, is not the most significant criterion for selecting the preferred cleanup activity. While controlling cost is important, protecting the environment and public health in a timely manner is more important.

5.0 REMEDIAL ALTERNATIVES

Alternatives were developed that met the intent of the ERA guidance which directs consideration of a no-action alternative in addition to any other proposed alternatives.

5.1 NO-ACTION ALTERNATIVE

The no-action alternative is a practical alternative. All sample analysis results (Appendix B) are well below the MTCA Residential Soil Cleanup Cr standard of 100 ppm. There is no danger to the public health or environment from contaminants at the site. The observed drum conditions in the sample trenches, geophysical survey results, and the sample results indicate that no additional effort is required to justify this alternative. All area maps would have a note added that the site contained buried crushed sodium dichromate drums and Cr and Cr+6 levels are within background levels. Reseeding the disturbed sample areas should be done.

5.2 SAMPLE ALL ANOMALIES

The purpose of sampling all anomalies (about 144) is to further confirm that the site contains no regulated hazardous waste. This alternative assumes that the existing sampling data (Appendix B) is accurate for the site but is not sufficient for the EPA and Ecology to make a decision that no further action is needed. The debris type will be visually identified at each anomaly location. If the anomaly is homestead debris, no sample collection will occur. If the anomaly is a crushed drum(s), sample collection will be for field screening and offsite laboratory analysis.

Sample collection will require a small backhoe and water truck for dust control. All excavated debris will be reburied where found.

When all the analysis results are received and show that the site is contaminant free, all area maps will be upgraded. A note will be added that the site contained buried crushed drums and that Cr and Cr+6 levels are within background levels. Reseeding of the disturbed sample areas should be done.

5.3 EXCAVATE AND DISPOSE AT CENTRAL LANDFILL

This alternative involves excavation of all anomalies, placing the debris in dump trucks and disposal at the central landfill. The barrels are not dangerous waste since the sample results (Appendix B) are at natural background levels. Excavation activities will require a water truck for dust control. If encountered, cultural resources impact will be mitigated in accordance with 36 CFR 800. The estimated excavation volume is 2,450 m^3 (3,200 yd^3). Sample collection will occur if discolored soil or debris other than crushed drums or homestead types appear during the excavations. Area stabilization and reseeding will follow excavation.

6.0 ENGINEERING EVALUATION AND COST ANALYSIS

The EE/CA involves a two-step process that focuses on each of the alternatives described in Section 5.0 of this proposal. The first step is the application of two screening factors to the alternatives. The two screening factors are (1) timeliness and (2) protection of the environment and public health. The alternatives that satisfy this initial step screening then go through the last step of the screening process. There are three second step selection criteria: (1) reliability/technical feasibility, (2) administrative/managerial feasibility, and (3) reasonable cost. The alternative that passes the screening factors and ranks highest among the selection criteria becomes the preferred remedial alternative for the ERA.

6.1 SCREENING FACTOR EVALUATION

Alternative screening for timeliness involves considering whether it is practical within the 1-yr ERA time frame. Public health and environment protection screening uses the *National Oil and Hazardous Substances Pollution Contingency Plan* (EPA 1990) requirement to drop options that do not meet federal ARARs.

An alternative evaluation for these two screening factors is discussed below and summarized in Table 2.

Table 2. Evaluation of Remedial Alternatives for Engineering Evaluation and Cost Analysis Screening Factors.

Alternative	Timeliness	Screening factors Protect public health	Protect environment	Retained for evaluation
No Action Required	No implementation required	Public health risks do not exist.	Environmental risk do not exist.	Yes
Sample all Anomalies	Can be implemented within 1 yr	Public health risks do not exist.	Environmental risk do not exist.	Yes
Excavate and transport to Central Landfill	Can be implemented within 1 yr	Public health risks associated with waste are eliminated.	Environmental risk is eliminated.	Yes

6.1.1 No-Action

Time is not a factor for the no-action alternative.

6.1.2 Sample all Anomalies

The completion time for this alternative is less than 1 yr. It will provide additional confirmation that no environmental and public health risks exists. Completion time will be about 4 months, depending on offsite laboratory response times, after EPA issues an action memorandum. Field activities will be scheduled to not interfere with Curlew nesting activities.

6.1.3 Excavate and Dispose at Central Landfill

The completion time for this alternative less than 1 yr. Sampling results show there are no environmental and public health risks at the site. Field activities will be scheduled to not interfere with Curlew nesting activities.

6.2 SELECTION CRITERIA EVALUATION

All three alternatives met the first step EE/CA screening factors. Below is the alternative's screening criteria evaluation.

6.2.1 Reliability/Technical Feasibility

The reliability/technical feasibility criterion includes rating the technology, the alternative effectiveness in achieving the ERA goal, the alternative's useful life, the operation and maintenance requirements, the constructibility, the time required, and the environmental impacts as a result of implementation.

6.2.1.1 No Action Required. The sample results show that all values are well within Hanford natural background levels (DOE 1992a, 1992b). The *Model Toxics Control Act* (MTCA) defines the upper background distribution bound as the 95% tolerance interval on the 95th percentile of the background distribution. For Cr, this value is 25 ppm. Note that since this is a statistically determined number, it is possible to exceed this value and still have natural data or an uncontaminated condition. There is no danger to the public health or environment from contaminants at the site. All Cr+6 readings are less than 5 ppm. The Cr readings are well below the Model A residential cleanup standards established by the State of Washington at 100 ppm (WAC 173-340-740). This state standard uses health risks associated with inhalation of resuspended dust.

Since all sampling results show there is no contamination at the site, this alternative meets all screening factors and is technically feasible. This alternative meets the ERA goal.

6.2.1.2 Sample all Anomalies. Sampling all anomalies is technically feasible. This alternative will confirm the characterization sampling results that no contamination exists.

Environmental impact will be negligible since no contamination exists. The buried debris will remain at the site.

6.2.1.3 Excavate and Transport to Central Landfill. This alternative is also technically feasible. It will be very effective in meeting the ERA goal by removing all potential contamination. Since this alternative removes all debris, the useful life is indefinite. Operation requirements will exist only during the debris removal process and site stabilization activities. Maintenance activities will be for the equipment used during the debris removal and site stabilization. Cleanup time will be about 6 wk with safe weather conditions.

The cleanup activities cannot occur between March and June due to Curlew nesting activities. There might also be hawk nests in the area that could restrict activities until late August.

Environmental impacts will be excavation dust and equipment exhaust fumes. A water truck will control the generated dust.

6.2.2 Administrative/Managerial Feasibility

This section describes the administrative and managerial feasibility implications of all the alternatives.

This criterion involves considering the implications of administrative and managerial requirements (e.g., permit requirements, transportation needs, public concerns, and nontechnical aspects of the alternative implementation). The DOE requires *National Environmental Policy Act of 1969* (NEPA) documentation to perform the removal activities under CERCLA. The specific NEPA document is referred to as a categorical exclusion (CX) as proposed in 10 CFR 1021 (DOE 1990). The CX is applicable to environmental restoration and waste management.

6.2.2.1 No Action. This alternative will require area map upgrades noting that buried crushed barrels exist at the site.

6.2.2.2 Sample all Anomalies. This alternative will require area map upgrades noting that buried crushed barrels exist at the site.

6.2.2.3 Excavate and Transport to Central Landfill. This alternative will require an excavation permit and other minor procedure required paperwork.

6.2.3 Reasonable Cost

The reasonable cost criterion evaluates the relative costs of each alternative. It does not include engineering or administrative expenditures incurred before implementation of an alternative. Weather conditions or physical resource restrictions (e.g., equipment failure) are expected to be the primary sources for ERA completion delays.

6.2.3.1 Expedited Response Action Estimated Cost Estimate for No Action Alternative. This alternative's cost uses the following assumption.

- Issue an Engineering Change Notice changing all area maps to note the site's condition and sites exact coordinates.

  Implementation

Engineering Support and Administration	$4,000
30% Contingency	1,200
Total	$5,200

6.2.3.2 Expedited Response Action Estimated Cost for Sampling All Anomalies Alternative. This alternative's cost estimate uses the following assumptions.

- 144 anomalies sampled. Sampling will consist of about two field screening and one offsite laboratory sample per anomaly plus QA splits, doubles, and equipment blanks for a total of about 190 offsite samples.
- Issue an Engineering Change Notice changing all area maps to note the site's condition.
- Sampler and lab tech hourly rate including overhead is $60.00/hr.
- Backhoe operator hourly rate including overhead is $50.00/hr.
- Field screening material costs per sample is $100.00.
- Offsite lab cost is $550.00/sample.

Implementation	
Labor	$ 36,000
Materials and Supplies	16,000
Analytical Services	104,500
Risk Assessment	45,000
Engineering and Administration	20,000
Subtotal	$222,300
30% Contingency	$ 66,690
Total	$288,990

6.2.3.3 Expedited Response Action Estimated Cost for Excavate and Dispose at Central Landfill Alternative. This alternative's cost uses the following assumptions.

- Equipment operator hourly rate including overhead is $50.00/hr.
- Weather allows safe working conditions.
- Rent three each 40 yd legal haul truck and trailer units.
- Mobilization, excavation, reseeding, stabilization,and demobilization will require 21 work days.
- Sampler and lab tech hourly rate including overhead is $60.00/hr.
- Field screening material cost per sample is $100.00.
- Offsite lab cost is $550.00/sample for 20 samples.
- Central Landfill fee is $27.00/yd^3 for 2,000 yd^3.

Implementation	
Labor	$45,400
Materials and Supplies	5,000
Analytical Services	15,400
Equipment Leasing	18,000
Central Landfill	54,000
Engineering and Administration	$10,000
Subtotal	$147,800
30% Contingency	44,340
Total	$192,140

6.3 PREFERRED REMEDIAL ALTERNATIVE

A summary of the evaluation of remedial alternatives for the EE/CA selection criteria is presented in Table 3. Based on the preliminary technology screening, screening factors, and selection criteria of the EE/CA, the preferred alternative for the ERA is to take NO ACTION. The samples analyzed show that there is no contamination problem. The few disturbed areas should be reseeded. The area maps will have notes added stating that the area contains buried crushed drums that present no hazard to the environment and public.

7.0 REFERENCES

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, Public Law 96-510, 94 Stat. 2767, 26 USC 1 et seq.

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EPA, 1990, *National Oil and Hazardous Substances Pollution Contingency Plan*, Title 40, Code of Federal Regulations, Part 300, U.S. Environmental Protection Agency, Washington, D.C.

Table 3. Evaluation of Remedial Alternatives for Engineering Evaluation and Cost Analysis Selection Criteria.

Criteria	No Action	Sample Anomalies	Excavate and Haul
	RELIABILITY/TECHNICAL FEASIBILITY		
Effectiveness	Environmental threat does not exist.		
Constructibility	None	NONE	NONE
Environmental Impacts	None	None	Short-term impacts include fugitive dust, noise, and transportation.
Reliability	None	None	Proven technology
Useful Life	Indefinite	Indefinite	Indefinite
	ADMINISTRATIVE/MANAGERIAL FEASIBILITY		
			Noise and fugitive dust pose minimal public nuisance during activities Requires health and safety protection for activities DOE NEPA Categorical exclusion required
Cost	Cost $5,200 Under allocated funds	Cost $288,990 Under allocated funds	Cost $192,140 Under allocated funds

GEO,1986, *Coyote Rapids, Wash.*, map no. 46119-F5-TF-024, U. S. Geological Survey, Denver , Colorado

Hazardous Waste Cleanup--Model Toxics Control Act, 1989, Revised Code of Washington, Chapter 70.105D, Washington State Department of Ecology, Olympia, Washington.

National Environmental Policy Act of 1969, Public Law 91-190, 83 Stat. 852, 422 USC 4321 et seq.

Resource Conservation and Recovery Act of 1976, Public Law 94-580, 90 Stat. 2795, 42 USC 6901 et seq.

WAC 173-340, *Model Toxics Control Act*, Washington State Department of Ecology, Olympia, Washington.

WIDS, 1992, *Waste Information Data System*, Westinghouse Hanford Company, Richland, Washington.

APPENDIX A

JOINT LETTER FROM REGULATORS

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STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

April 30, 1992

MAY 1992 RECEIVED EDMC

Mr. Steven H. Wisness
Hanford Project Manager
U.S. Department of Energy
P.O. Box 550 A5-19
Richland, WA 99352-0550

Re: Expedited Responses Action Planning Proposals

Dear Mr. Wisness:

The Washington Department of Ecology and the U.S. Environmental Protection Agency have been reviewing the four planning proposals received from you on April 8.

- North Slope landfills
- 618-11 burial ground
- river pipelines
- sodium dichromate drum burial site

All four of the proposals represent significant progress in cleanup action on the Hanford site. For now, Ecology and EPA recommend that an EE/CA be prepared immediately for two of the proposals; the sodium dichromate drums and the North Slope sites.

Ecology and EPA expect to receive two additional planning proposals towards the end of this month.

- river railroad wash station
- picking acid cribs

From the four sites remaining of the six proposed, Ecology and EPA will select two more for which EE/CAs will be prepared. Ecology and EPA will then be in the position of identifying which of the four sites with EE/CAs should be commenced first, in the context of the limited funds and resources available. All will be accomplished when such limitations are overcome.

Ecology and EPA have some general comments on the first four planning proposals, and some specific comments on the two selected. These comments should be addressed in future planning proposals, as Ecology and EPA do not wish to delay those currently under consideration. Gaps in these first proposals should be addressed in the EE/CAs.

Schedule:

- The schedules are drawn out for unnecessarily long durations.

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- Preparation of the proposal may begin at the start of the schedule, in parallel with safety documentation etc.

- NEPA documentation is not necessary for removal actions, according to EPA and USDOJ policy. Any delays for NEPA documentation are unwarranted.

- There are three serial review periods, USDOE, Ecology/EPA, and public. Some of these may be run in parallel. The NCP does not require a second public review at the end of the process.

Cost:

- Project management costs are exaggerated by the excessive duration of the projects. In one proposal, project management comprises one half of the total cost. There is no explanation of what will keep a project engineer fully occupied and dedicated to each of the projects for their full duration.

Description:

- The likely remedial alternatives are not described, although the cost estimate is based on an assumption of a particular alternative. There is not enough description of the likely removal alternatives to allow EPA or Ecology to make a fully informed approval of the planning proposals. Ecology and EPA would like more description of the alternatives being focused on prior to granting an approval that would initiate the expenditure of resources for preparing the EE/CA.

North Slope ERA Planning Proposal

Schedule:

- The schedule extends for 2 years although this looks like one of the simplest removals on the Hanford site.

Description:

- There is no description of what actual remedial work would be undertaken, notably with respect to soils.

- There should be no need to replace fences and signs if the ERA successfully removes the physical and environmental hazards.

- Test pits may be more informative than cone penetrometer tests in the landfills. Some of the physical hazards could be contemporaneously eliminated while the back-hoe is mobilized.

- The 2-4-D tanks can not be sampled with a cone penetrometer. The likely alternative should be excavation of the tanks with direct sampling to confirm the absence of residual contamination. The

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tanks themselves may not be dangerous waste, pursuant to WAC 173-303-160.

Sodium Dichromate Barrel Disposal Site ERA Planning Proposal

Schedule:

- The schedule extends for 2.5 years although this looks like one of the simplest removals on the Hanford site.

Cost:

- The necessity of, and alternatives to the expensive disposal of the barrels as hazardous waste need to be explored. The proposal allocates $500,000 to disposing of the excavated barrels. The empty barrels may not need to be treated as dangerous waste, according to WAC 173-303-160. They may be disposed of as solid waste, or even recycled as scrap.

Description:

- There is no description of what actual remedial work would be undertaken, notably with respect to soils.

- The likely remedial alternatives are not described, although the cost estimate is based on an assumption of a particular alternative. It is only suggested that removal of drums and contaminated sediment is the plan. There is no explanation of how potential contamination in soil will addressed.

Should you have any questions about the ERA process, please contact either Steve Cross of Ecology (206) 459-6675 or Doug Sherwood of EPA (509) 376-9529.

Sincerely,

Paul T. Day
Hanford Project Manager
EPA Region 10

David B. Jansen, P.E.
Hanford Project Manager
Department of Ecology

PD:DJ:jw

cc. Dave Nylander, Ecology
B. Stewart, USDOE
T. Veneziano, WHC

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APPENDIX B

SOIL SAMPLE DATA SUMMARY

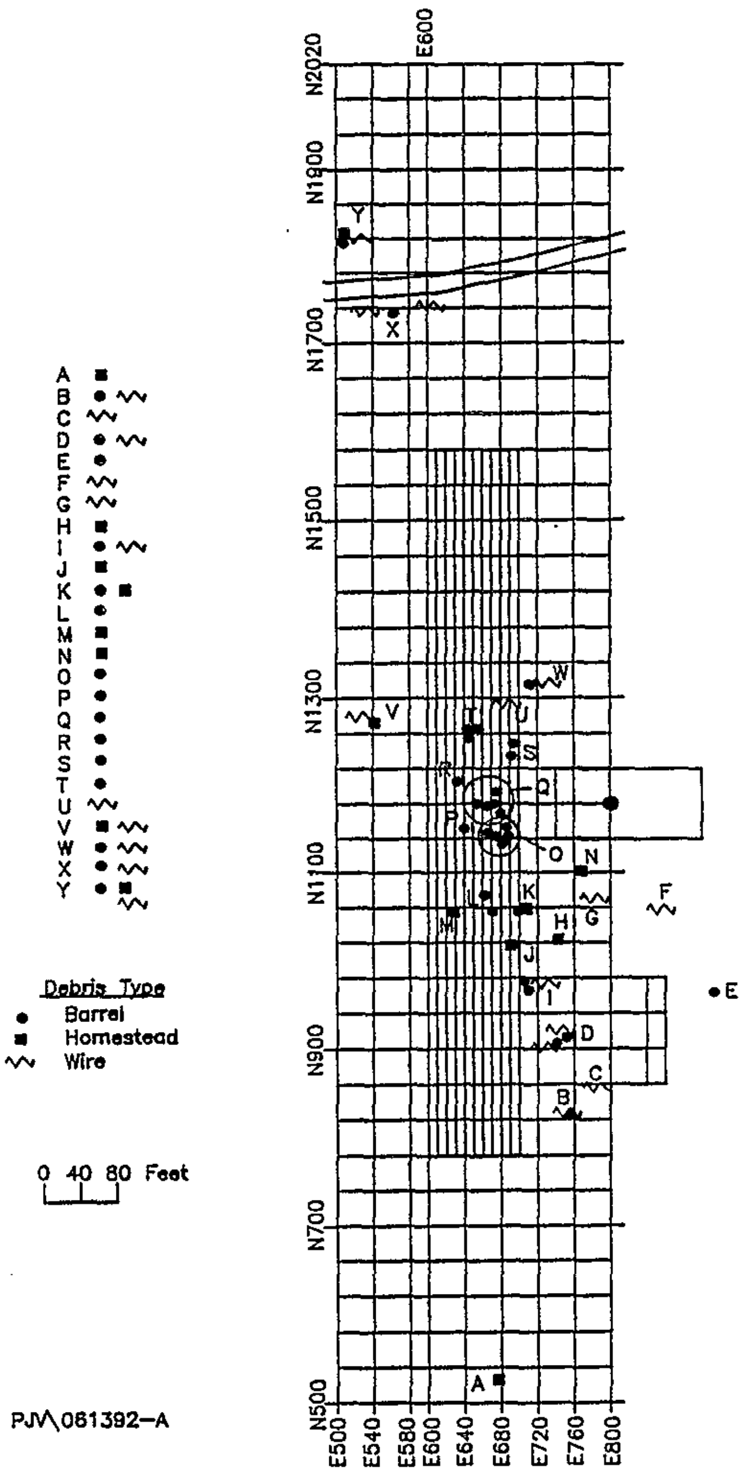

Figure B-1. Surface Debris Grid Location.

Table B-1. Sample Location Table.

SAMPLE LOCATION		SAMPLE TYPE
Site B:	1 Barrel	Field Screening Cr+6
Site D:	2 Barrels (Composite)	Field Screening Cr+6
Site I:	2 Barrels (Composite)	Field Screening Cr+6
Site K & L:	3 Barrels (Composite)	Field Screening Cr+6
Site O:	5 Barrels (Composite)	Field Screening Cr+6
Site P:	2 Barrels (Composite)	Field Screening Cr+6 Offsite Lab. (Included duplicate and split)
Site Q:	5 Barrels (Composite)	Field Screening Cr+6
Site R:	2 Barrels (Composite)	Field Screening Cr+6
Site S:	2 Barrels (Composite)	Field Screening Cr+6
Site T:	3 Barrels (Composite)	Field Screening Cr+6
Site W:	1 Barrel	Field Screening Cr+6
Site X:	1 Barrel	Field Screening Cr+6
West End of Monitoring Well Pad		Field Screening Cr+6 4 Barrels (Composite)
50 ft. west of grid point E500 N900		BacKground (Offsite Lab) (Duplicate and Split)
50 ft. west of grid point E500 N1500		Background (Offsite lab)
50 ft. north of grid point E640 N2020		Background (Offsite Lab)
50 ft. east of grid point 800 N1500		Background (Offsite lab)
Trench no. 1 From N1000 E610 To N1050 E610 Trench no. 2 From N1220 E700 To N1220 E750		16 Field Screening Samples Cr+6 7 Offsite Lab. Samples Trench with Duplicate and Split.
Sample Pit N1180 E750		Offsite laboratory

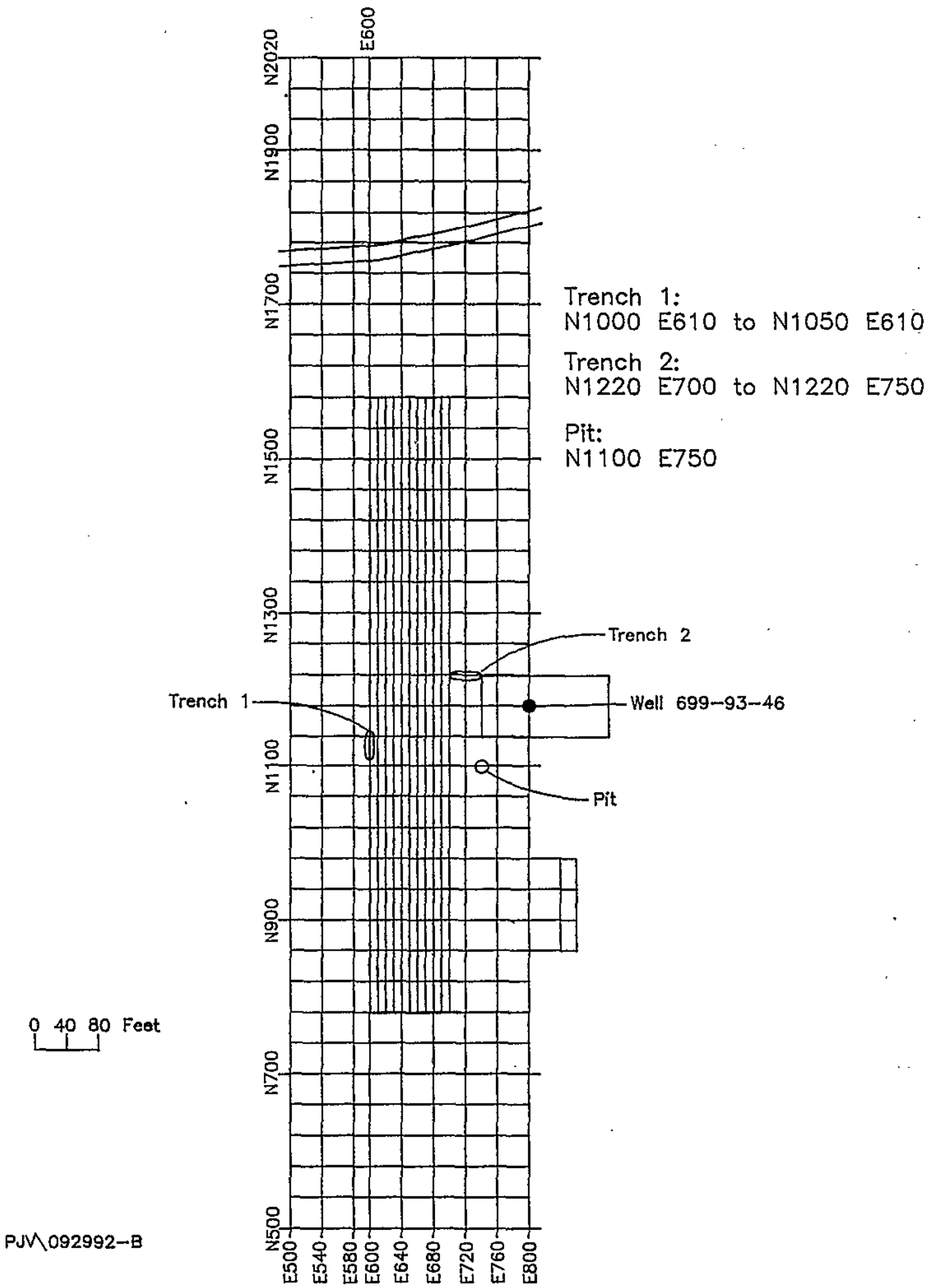

Figure B-2. Sample Trenches and Pit Locations.

Table B-2. Sample Results (sheet 1 of 2)

SAMPLE No.	SAMPLE TYPE	LOCATION (Figure 2 and 11)	ANALYSIS RESULT Chromium+6 (Cr+6) ppm	Chromium (Cr) ppm
		Surface Soil Samples Collected 7/15/92		
B018X7	Cr+6 Field Screening	Site B	0.0	NR
B018X8	Cr+6 Field Screening	Site D, Composite	0.0	NR
B018Y0	Cr+6 Field Screening	Site I, Composite	0.0	NR
B018Y1	Cr+6 Field Screening	Site K & L, Composite	0.0	NR
B018Y2	Cr+6 Field Screening	Site O, Composite	0.0	NR
B018Y3	Cr+6 Field Screening	Site P, Composite	0.0	NR
B018Y4	Cr+6 Field Screening	Site Q, Composite	0.0	NR
B018Y5	Cr+6 Field Screening	Site R, Composite	0.0	NR
B018Y6	Cr+6 Field Screening	Site S, Composite	0.0	NR
B018Y7	Cr+6 Field Screening	Site T, Composite	0.0	NR
B018Y8	Cr+6 Field Screening	Site W	0.0	NR
B018Y9	Cr+6 Field Screening	Site X	0.0	NR
B018Z0	Cr+6 Field Screening	West of Well Pad, Composite	0.0	NR
B018Z1	OFFSITE Lab	Site P	NR	11.60 *
B018Z2	OFFSITE Lab (Quality Assurance, QA)	B018Z1 Duplicate	NR	15.50 *
B018Z3	OFFSITE Lab (QA)	B018Z1 Split	NR	12.00 *
B018Z4	OFFSITE Lab (QA)	Equipment Blank	NR	0.92 *
		Background Surface Soil Samples Collected 8/24/92		
B018Z5	OFFSITE Lab	50 ft. West N900 E500	<0.50	10.3
B018Z6	OFFSITE Lab	50 Ft. West N1500 E500	<0.50	11.2
B018Z7	OFFSITE Lab	50 ft. North N2020 E660	<0.50	10.4
B018Z8	OFFSITE Lab	50 ft. East N1500 E800	<0.50	10.9
B018Z9	OFFSITE Lab (QA)	Duplicate B018Z5	<0.50	10.9
B01900	OFFSITE Lab (QA)	Split B018Z5	<0.10	12.9
		Test Trench Samples collected 9/17/92		
B01901	OFFSITE Lab (QA)	Equipment Blank	<0.50	0.7 *
B01902	OFFSITE Lab	Trench 1, South End, 2.5 ft. deep	<0.50	12.1 *
B01903	OFFSITE Lab (QA)	B01902 Duplicate	1.32	15.1 *
B01904	OFFSITE Lab (QA)	B01902 Split	<0.10	18.0
B01905	OFFSITE Lab	Trench 1, North End, 8 ft. deep	<0.50	27.8 *
B01906	OFFSITE Lab	Trench 2, West End, 7.5 ft. deep	<0.50	15.3 *
B01907	OFFSITE Lab	Trench 2, East End, 6 ft. deep	<0.50	11.0 *
B01908	Cr+6 Field Screening	Trench 1, South End, 1.5 ft. deep	0.98	14.4
B01909	Cr+6 Field Screening	Trench 1, South End, 2.5 ft. deep	1.06	11.1
B01910	Cr+6 Field Screening	Trench 1, South End, 5 ft. deep	2.87	13.9
B01911	Cr+6 Field Screening	Trench 1, South End, 6 ft. deep	0.92	10.4
B01912	Cr+6 Field Screening	Mid-trench 1, 3 ft. deep	1.83	29.6
B01913	Cr+6 Field Screening	Trench 1, North End, 8 ft. deep	2.91	45.1
B01914	Cr+6 Field Screening	Trench 2, West End, 3 ft. deep	1.91	38.9
B01915	Cr+6 Field Screening	Trench 2, West End, 7.5 ft. deep	3.73	56.3
B01916	Cr+6 Field Screening	Mid-trench 2, 3 ft. deep	15.60	39.9
B01917	Cr+6 Field Screening	Trench 2, East End, 6 ft. deep	1.02	10.0
B01918	Cr+6 Field Screening	Trench 2, East End, 4.5 ft. deep	0.0	11.4

* Offsite Lab Gamma Spectrum measurements are at background radiation levels.

Table B-2. Sample Results (sheet 2 of 2)

SAMPLE No.	SAMPLE TYPE	LOCATION (Figure 2 and 11)	ANALYSIS RESULT Chromium+6 (Cr+6) ppm	Chromium (Cr) ppm
		Test Trench Samples Collected 9/24/92 (Repeat of samples B01912 through B01916)		
B01919 (B01916)	Cr+6 Field Screening	Mid-trench 2, 3 ft. deep	0.87	<1.19
B01920 (B01914)	Cr+6 Field Screening	Trench 2, West End, 3 ft. deep	1.89	<1.20
B01921 (B01915)	Cr+6 Field Screening	Trench 2, West End, 7.5 ft. deep	0.93	<1.49
B01922 (B01912)	Cr+6 Field Screening	Mid-trench 1, 3 ft. deep	0.87	<1.20
B01923 (B01913)	Cr+6 Field Screening	Trench 1, North End, 8 ft. deep	2.91	<1.20
		Test Pit Samples Collected 9/24/92		
B01924	Test Pit OFFSITE Lab (QA)	Equipment Blank	<0.50	0.96
B01925	Test Pit OFFSITE Lab	6 ft. deep	<0.10	4.4
B01926	Test Pit OFFSITE Lab (QA)	B01925 Duplicate	<0.50	7.8
B01927	Test Pit OFFSITE Lab (QA)	B01925 Split	<0.50	7.0

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